

# CONSERVATION *Showcase*



## Schroeder Applies Swine Manure Using Low Disturbance

For more than 20 years Plymouth County farmer Tony Schroeder applied swine manure to his cropland using disk blades attached to a honey wagon, leaving less than 20 percent residue cover. But after seeing his neighbor knife in swine manure using a low soil disturbance method three years ago, Schroeder decided this was an application process he should try.

This low disturbance method of knifing swine manure directly into crop rows leaves as much as 70 percent of the soil covered with crop residue. The obvious benefit is erosion reduction, but Schroeder says the low disturbance method also lessens compaction, lowers the risk of manure runoff, allows for more efficient manure application and reduces odor.

Schroeder farms nearly 2,000 acres of corn and soybeans with his father. He grows oats, too, and operates some hayland and pastureland. Schroeder feeds 6,000 hogs and 600-800 head of cattle per year, and raises 100 cow-calf pairs annually. His wife, Shirley, has a part-time job in LeMars and finds time on the farm to take care of the nurseries and does the books for the operation. The couple

has four boys who also help out on the farm.

He sold some land to a neighbor for hog building space three years ago, with the agreement that Schroeder could use manure from those facilities. The company



*Tony Schroeder*

his neighbor hired to apply manure used a toolbar with a Dietrich shank that Schroeder says is a "knife system with a shovel sweep" that leaves residue on top.

Schroeder hired the same business to apply manure to his soybeans, and he was equally impressed. "I said 'Wow, look at this. It looks like they barely disturbed the soil.'" Schroeder also tried the application on corn stalks. "It worked great in there, too," he said. "You couldn't even see where he knifed it in."

### **Yields Not Affected**

Schroeder was concerned crop yields would drop when he switched to his new system. Yields have not suffered, however, since Schroeder's switch to a low disturbance manure application three years ago. "I was concerned I would get a yield reduction with the manure underground (not being widespread), but watching the yield moni-

*Plymouth County District Conservationist Jim Lahn (right) talks to Tony Schroeder about a potential EQIP (Environmental Quality Incentives Program) contract.*



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tor, I can't see it," he said. "The roots move far enough into the manure zones to get the N, P and K they need. I'm sold on it."



## **Erosion Reduction**

Schroeder says it is important to keep the soil covered in Plymouth County, where much of the cropland lies on a seven percent slope or more. While the increased residue cover protects against erosion by water, it also reduces wind erosion. "I used to see big clouds of dirt and dust, but now I'm not seeing wind erosion issues," he said.



## **Less Compaction**

While Schroeder's new system leaves the soil undisturbed, the disk covering system created a mound that Schroeder annually smoothed prior to planting. He says the disk covering system creates sidewall

compaction – where disk openers and gauge wheels smear and compact the sides of the seed trench, restricting roots from developing laterally. "That is one less trip across the field I need to make now," said Schroeder.

## **Environmentally-Friendly**

The low disturbance system knifes the manure into the ground, sealing it up. This dramatically reduces the potential for manure to runoff into nearby streams or rivers. ISU Extension Field Agronomist Joel DeJong in Plymouth County says the disk covering system often shows evidence of manure on the soil surface. "From what I've seen, knifed in swine manure is more easily retained than disk-covered manure," he said.

When it comes to swine manure application, DeJong says a general rule is the more it smells the more you're probably losing. Knifing manure into the ground also helps reduce odor. Low-disturbance methods seal manure in and don't allow volatile fatty acids, ammonia, and hydrogen sulfite, key components in manure odor, to release into the air.

## **Timing is Key**

Schroeder says one challenge with the low disturbance method of applying swine manure is timing. The disk covering system allows producers to break through frozen ground to apply manure, but the low disturbance method of knifing and sweeping does not work on frozen ground. "It's important to wait to apply manure until after ground temperatures drop to less than 50 degrees so you don't get the volatilization," says Schroeder. "On the other hand, you can't wait until the ground freezes either."

Schroeder is now a major proponent of the low disturbance method of knifing and sweeping in swine manure. He has worked with Plymouth County District Conservationist Jim Lahn of the USDA's Natural Resources Conservation Service (NRCS) to promote the system and educate local producers on the benefits. "In some areas of the county you look for a distance and it's all black because of the disk covering method," he said. "There is a lot of swine production in this part of the state, which is good and that's a good source for fertility, but we can apply the manure in a more environmentally friendly way."

For more information about the best way to apply manure on your cropland, visit your local NRCS or ISU Extension office today.

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